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More questions

Q. How is AI research done?

A. AI research has both theoretical and experimental sides. The experimental side has both basic and applied aspects.

There are two main lines of research. One is biological, based on the idea that since humans are intelligent, AI should study humans and imitate their psychology or physiology. The other is phenomenal, based on studying and formalizing common sense facts about the world and the problems that the world presents to the achievement of goals. The two approaches interact to some extent, and both should eventually succeed. It is a race, but both racers seem to be walking.

Q. What are the relations between AI and philosophy?

A. AI has many relations with philosophy, especially modern analytic philosophy. Both study mind, and both study common sense. The best reference is [[Tho03](#)].

Q. How are AI and logic programming related?

A. At the very least, logic programming provides useful programming languages (mainly Prolog).

Beyond that, sometimes a theory useful in AI can be expressed as a collection of *Horn clauses*, and goal to be achieved can be expressed as that of finding values of variables satisfying an expression . The problem can sometimes be solved by running the Prolog program consisting of and .

There are two possible obstacles to regarding AI as logic programming. First, Horn theories do not exhaust first order logic. Second, the Prolog program expressing the theory may be extremely inefficient. More elaborate control than just executing the program that expresses the theory is often needed. Map coloring provides examples.

Q. What should I study before or while learning AI?

A. Study mathematics, especially mathematical logic. The more you learn about sciences, e.g. physics or biology, the better. For the biological approaches to AI, study psychology and the physiology of the nervous system. Learn some programming

languages--at least C, Lisp and Prolog. It is also a good idea to learn one basic machine language. Jobs are likely to depend on knowing the languages currently in fashion. In the late 1990s, these include C++ and Java.

Q. What is a good textbook on AI?

A. *Artificial Intelligence* by Stuart Russell and Peter Norvig, Prentice Hall is the most commonly used textbook in 1997. The general views expressed there do not exactly correspond to those of this essay. *Artificial Intelligence: A New Synthesis* by Nils Nilsson, Morgan Kaufman, may be easier to read. Some people prefer *Computational Intelligence* by David Poole, Alan Mackworth and Randy Goebel, Oxford, 1998.

Q. What organizations and publications are concerned with AI?

A. [The American Association for Artificial Intelligence \(AAAI\)](#), the [European Coordinating Committee for Artificial Intelligence \(ECCAI\)](#) and the [Society for Artificial Intelligence and Simulation of Behavior \(AISB\)](#) are scientific societies concerned with AI research. The Association for Computing Machinery (ACM) has a special interest group on artificial intelligence [SIGART](#).

[The International Joint Conference on AI \(IJCAI\)](#) is the main international conference. The [AAAI](#) runs a US National Conference on AI. [Electronic Transactions on Artificial Intelligence](#), [Artificial Intelligence](#), and [Journal of Artificial Intelligence Research](#), and [IEEE Transactions on Pattern Analysis and Machine Intelligence](#) are four of the main journals publishing AI research papers. I have not yet found everything that should be in this paragraph.

[Page of Positive Reviews](#) lists papers that experts have found important.

Funding a Revolution: Government Support for Computing Research by a committee of the National Research covers support for AI research in [Chapter 9](#).

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John McCarthy

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